

# Peng-Ting (Dean) Kuo

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## Education

### University of Texas at Austin

Doctor of Philosophy in Government

- Incoming student

Texas, USA

Aug 2025 - May 2030

### National Taiwan University (NTU)

Master of Arts in Political Science (Majored in International Relations)

Taipei, Taiwan

Sep 2021 - Nov 2024

- Overall GPA: **4.06/4.3**

- Thesis: The Impact of Electoral Reform on Legislators' Campaign Strategies: An Application of Large Language Models
- Related courses: Probability and Statistics, Linear Algebra and Its Applications, Applied Deep Learning, Programming for Business Computing, Natural Language Processing and Its Applications, Data Science and Social Inquiry

### National Taiwan University (NTU)

Bachelor of Arts in Political Science and Minor in Economics

Taipei, Taiwan

Sep 2017 - June 2021

- Last two years GPA: **4.11/4.3**

- Overall GPA: 3.64/4.3

- Related courses: Calculus, Microeconomics, Macroeconomics, Statistics and Econometrics with Recitation

## Peer Reviewed Papers

**"LLMs are Biased Evaluators: But Not Biased for Retrieval Augmented Generation."** *The 63rd Annual Meeting of the Association for Computational Linguistics (ACL Findings)*. Vienna, Austria, Jul 27 - Aug 1, 2025. (with Yen-Shan Chen, Jing Jin, Chao-Wei Huang, Yun-Nung Chen)

## Work Under Review

**"Explaining China's Security Policy under Xi Jinping: A Neoclassical Realist Approach."** R&R, with Ronan Tse-Min Fu, Yu-Ning Chiu

**"Democracy or Prosperity? A Cross-National Analysis of East Asian Countries."** Under Review, with Ronan Tse-min Fu, I-Lien Lee, Chia-Hsiang Han, Yu-Ning Chiu

## Conference Presentation

**"Divergent Paths from Electoral Institutions to Campaign Strategies: Analyzing Candidate Manifestos in Japan and Taiwan."** Presented at The 2025 IPSA World Congress. Seoul, South Korea, Jul 12-16, 2025. (with Ronan Tse-min Fu, Nick Lin, Akitaka Matsuo, Naofumi Fujimura, and Yutaka Shinada)

**"Explaining China's Security Policy under Xi Jinping: A Neoclassical Realist Approach."** Presented at The Prospect Foundation Conference. Taipei, Taiwan, August 30, 2024. (with Ronan Tse-Min Fu, Yu-Ning Chiu)

**"From Human-Label to Auto-Label: An Automatic Classification Model for Legislators' Oral Question."** Presented at The 16th International Conference on Parliamentary Studies. Taipei, Taiwan, Jun 15-16, 2024. (with Yu-Hung Sun, Chun-Ming Tsui, and Hong-Wung Wang)

**"Decoding Campaigning Strategies: A Machine Learning Approach to Understanding the Impact of Election Systems on Legislative Candidates."** Presented at The 81st Annual Midwest Political Science Association Conference (MPSA). Chicago, United States, Apr 4-7, 2024. (with Ronan Tse-Min Fu)

**"Democracy or Prosperity? A Cross-National Analysis of East Asian Countries."** Presented at 2023 Asian Barometer Survey Conference. Taipei, Taiwan, Jun 13, 2023. (with Ronan Tse-min Fu, I-Lien Lee, Chia-Hsiang Han, Yu-Ning Chiu, and Ronald Pernia)

## Professional Experience

### Institute of Political Science, Academia Sinica

Research Assistant

Taipei, Taiwan

Mar 2022 - Present

- Engineered datasets and conducted statistical analysis on cross-national data from twelve East Asian countries using Python and R, contributed to a publication at the Asian Barometer Survey Conference 2023
- Developed and curated a 2-million-entry news database from China's People's Daily. Trained classification models using PyTorch and RoBERTa framework, achieving 96% accuracy in identifying international news
- Developed and maintained an events database on UK-Germany relations, consolidating a comprehensive resource and literature reviews for the book project and regularly reporting progress to the team

### Department of Computer Science & Information Engineering, NTU

Research Assistant

Taipei, Taiwan

Aug 2024 - Present

- Optimized research design and evaluated bias in LLMs (GPT, LLaMA) using the Retrieval-Augmented Generation (RAG) framework, incorporating social science experimental methodology
- Curated and analyzed 1000+ paired human-AI annotated datasets, developed visualization tools for bias assessment, contributing to a paper accepted by the 2025 ACL Findings

## Institute of Sociology, Academia Sinica

Research Assistant

Taipei, Taiwan

Apr 2024 - Present

- Analyzed 600+ WTO Dispute Settlement Body cases and 8000+ documents using social network analysis uncovering key patterns and relationships between countries
- Designed data pipeline from scratch, including web scrapping, text pre-processing, and data analytics, improving data accessibility for further research

## Invited Talk

### Exploring an Interdisciplinary Academic Career in Data Mining and NLP

2024

Department of Political Science, Soochow University

- Guest lectured on applications of NLP in political science research during graduate statistics courses
- Led hands-on Python programming workshops demonstrating NLP implementation

## Honor

### Phi Tau Phi Scholastic Honor Society, National Taiwan University

2025

Warranted of achieving academic excellence upon graduation

### TOEFL ITP Higher Education Research Scholarship, TOEFL Chun-Hsin Limited

2024

Fostered international academic talent through supporting young scholars to develop both research capabilities and academic English proficiency in higher education

### Travel Grant for International Conference Participation, National Science and Technology Council; NTU

2024

Encouraged students to attend international conferences, present research results and strengthen research capabilities

### Diplomatic Scholarship, Ministry of Foreign Affairs, Republic of China (Taiwan)

2022

Awarded students with outstanding academic performance and interests in diplomacy

### Yu Ren-Huan Scholarship, Department of Political Science, NTU

2019

Awarded to students with outstanding academic performance in the study of political science

### Dean's List Award (Rank 2/46), NTU

2019

Awarded students with outstanding academic performance

## Teaching Experience

### National Taiwan University (NTU)

Taipei, Taiwan

Applied Deep Learning (CSIE5431)

Sep 2024 - Nov 2024

- Served as a course teaching assistant, providing weekly office hours for student coding or model-tuning inquiries
- Graded natural language generation assignment of 170+ students which constituted 20% of their final course grade

Computational Social Science (PS5697)

Feb 2024 - May 2024

- Conducted weekly office hours, addressing code issues and project ideas in computational social science
- Instructed students in fundamental Netlogo programming syntax and library utilization

Basic Mathematics for Social Science (PS5710)

Sep 2023 - Dec 2023

- Facilitated in-depth learning of calculus and linear algebra for graduate-level social science students

Social Network and Group Behavior (PS5705)

Feb 2023 - Jun 2023

- Instructed students in R programming fundamentals for social network analysis and offered weekly support sessions

Seminar on Game Theory (PS5019)

Sep 2022 - Dec 2022

- Supported graduate students in advanced game theory concepts through weekly office hours

## Project

### Legislator Manifesto Classification (Master's Thesis)

Feb 2023 - Jun 2024

- Uncovered key relationships between electoral systems and candidates' strategies and contributed a complementary theory for electoral reform, enhancing understanding of campaign strategies in Taiwan
- Developed a novel classification pipeline using BERTopic, LDA models, and LLM-based prompt engineering with Chain-of-Thought and Least-to-Most, automating and improving objectivity in manifesto classification

### Legislator Interpellation Classification

Nov 2023 - Dec 2023

- Addressed the high cost of manual annotation legislators' questioning classification tasks, significantly reducing resource requirements streamlining political text analysis
- Implemented a multi-label classification model for Taiwan legislator interpellations using Longformer and RoBERTa architectures, achieving a Hamming score of 0.84, equivalent to human coder inter-reliability

### Predict House Price by House Description in Taipei

Nov 2022 - Nov 2022

- Developed a machine learning algorithm to improve house seekers' filters by classifying house descriptions and features
- Transformed text using TF-IDF and developed models including Support Vector Machine and Random Forest to predict house prices and attained over 71% accuracy

## Skills

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|------------------------|---|
| <b>Language</b>        | Mandarin, English (GRE 330/340 (V:160 Q:170 AW:3.5); TOEFL 106/120 (R:29 L:27 S:23 W:27)), Japanese |
| <b>Programming</b>     | Python (PyTorch, Numpy, Pandas, BERTopic, Langchain), R, Netlogo                                    |
| <b>Software Skills</b> | LaTeX, Git, Linux(Ubuntu, Shell Scripting)  |